Department of Energy Technology

The European Union Emission Trading Scheme - development of volumes and prices

Harri Haavisto

Aalto University

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Harri Haavisto

Aalto University
School of Engineering
Department of Energy Technology

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1. Introduction

The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. It is an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCC). The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas (GHG) emissions. These amount to an average of five per cent against 1990 levels over the five-year period 2008-2012. The major difference between the Protocol and the Convention is that while the Convention encouraged industrialized countries to stabilize GHG emissions, the Protocol commits them to do so. [1]

The Kyoto Protocol offers three market-based mechanisms to countries to meet their national targets. These are:

- Emission tradings
- Clean development mechanism (CDM)
- Joint implementation (JI)

The European Union has identified climate change as one of the most important challenges. Recognizing that climate change is likely to have major negative consequences for the environment, the economy and societies at large, the EU has repeatedly confirmed its position that an increase in the global, annual, mean surface temperature should not exceed 2 °C above pre-industrial levels [2].

To achieve this goal and meet the targets of Kyoto Protocol, the EU has launched the EU Emission Trading Scheme (ETS) on January 1, 2005. It is the largest emission trading scheme in the world, covering some 11 000 power stations and industrial plants in 30 countries (the 27 EU member states and Iceland, Liechtenstein and Norway). It is about half of the total CO2 emissions in the EU. The framework for the ETS is based on directive 2003/87/EC, which became law in October 25, 2003.

The EU ETS works on the cap and trade principle. There is a cap on the total amount of emissions in the system. Within this cap, companies receive emission allowances, which they can sell to or buy from one another as needed. The limit on the total number of allowances available ensures that they have a value. At the end of every year, each company must surrender enough allowances to cover

all its emissions, else heavy fines are imposed to them. If a company reduces its emissions, it can keep the spare allowances to cover its future needs or sell them to another company that is short of allowances. [3]

The first phase in the EU ETS was in 2005-2007. The second phase is from 2008 to 2012 and the third phase from 2013 to 2020. The target in 2020 is that emissions will be 21% lower than in 2005. In the second phase, the EU ETS expanded to the Clean Development Mechanism (CDM) and the Joint Implementation (JI).

The CDM, defined in Article 12 of the Kyoto Protocol, allows emission reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO2. These CERs can be traded and sold, and used by industrialized countries to a meet a part of their emission reduction targets under the Kyoto Protocol. The mechanism encourages sustainable development and emission reductions, while giving industrialized countries some flexibility in how they meet their emission reduction limitation targets. [7]

The Joint Implementation, defined in Article 6 of the Kyoto Protocol, allows a country with an emission reduction or limitation commitment to earn emission reduction units (ERUs) from an emission reduction or emission removal project in another Annex B Party, each equivalent to one tonne of CO2, which can be counted towards meeting its Kyoto target. Joint implementation offers to member countries a flexible and cost efficient means of fulfilling a part of their Kyoto commitments, while the host country benefits from foreign investment and technology transfer. [8]

This article introduces the European Union Emission Trading Scheme and its three phases. The main purpose is to describe how the EU ETS has developed and what are the main differences between the phases: allocation processes, sectors, verified emissions and price of carbon tonne. In the end of this article, section 5, consider how other than EU countries are developing emissions trading systems.

This research study was carried out at the research group of Energy Economics and Power Plant Engineering of the Department of Energy Technology of the School of Engineering at Aalto University. This research study is an individual assignment of Master's level studies at the Department of Energy Technology. The work was carried out under the supervision of Dr Sanna Syri, Professor of Energy Economics.

2. Phase I (2005-2007) and Phase II (2008-2012)

2.1 Phase I description

The EU Emission Trading Scheme started on January 1, 2005. The phase I was introduced as a warm up period and it operated from 2005 to 2007 in order to put in place the policy infrastructure of permits trading. For the first phase Member States were allowed to allocate at least 95 % of the allowances free of charge [4].

In the first phase the main ETS sectors were energy activities, production and processing of ferrous metals, mineral industry and other activities. Details of these sectors are explained in the Directive 2003/87/EC and are seen in Picture 1. Two additions to details are:

1. Installations or parts of installations used for research, development and testing of new products and processes are not covered by this Directive.
2. The threshold values given on Picture 1 generally refer to production capacities or outputs. Where one operator carries out several activities falling under the same subheading in the same installation or on the same site, the capacities of such activities are added together.

The emission trading data is collected to the Community Independent Transaction Log (CITL). It is a central transaction log, run by the European Commission. The CITL checks and records all transactions taking place within the trading scheme. However, the CITL has a little bit different sectors for ETS than the Directive 2003/87/EC. The sectors are:

1. Combustion installations
2. Mineral oil refineries
3. Coke ovens
4. Metal ore roasting or sintering
5. Pig iron or steel
6. Cement clinker or lime
7. Glass including glass fibre
8. Ceramic products by firing
9. Pulp, paper and board
10. Other activity opted-in

The sectors above are also used in this article, when emissions are examined, for both phases I and II.

Activities	Greenhouse gases
Energy activities	
Combustion installations with a rated thermal input exceeding 20 MW (except hazardous or municipal waste installations)	Carbon dioxide
Mineral oil refineries	Carbon dioxide
Coke ovens	Carbon dioxide
Production and processing of ferrous metals	
Metal ore (including sulphide ore) roasting or sintering installations	Carbon dioxide
Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exceeding 2,5 tonnes per hour	Carbon dioxide
Mineral industry	
Installations for the production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or lime in rotary kilns with a production capacity exceeding 50 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day	Carbon dioxide
Installations for the manufacture of glass including glass fibre with a melting capacity exceeding 20 tonnes per day	Carbon dioxide
Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain, with a production capacity exceeding 75 tonnes per day, and/or with a kiln capacity exceeding 4 m^3 and with a setting density per kiln exceeding 300 kg/m^3	Carbon dioxide
Other activities	
Industrial plants for the production of (a) pulp from timber or other fibrous materials	Carbon dioxide
(b) paper and board with a production capacity exceeding 20 tonnes per day	Carbon dioxide

Figure 1 Categories of activities in the EU ETS phase I (2005-2007). [4]

2.1.1 Phase I allocation

Each Member State had to prepare and publish a first National Allocation Plan (NAP) for the 2005-2007 trading period by 31 March 2004 (1 May 2004 for the 10 Member States that joined the European Union in 2004) [3]. There were a number of significant delays, among them most importantly member states registries and NAPs, which in some cases were late more than a year [2]. For example the Commission adopted decisions on the allocation plans of Italy on 25 may 2005 and Greece on 20 June 2005. On first NAPs each Member State had to decide upon the total quantity of allowances it will allocate for that period and the allocation of those allowances to the operator of each installation.

The assessment of the allocation plans is based on the 12 common criteria in Annex III to the Directive on Emission Trading. For the 2005-2007 trading period, 11 criteria were relevant. For example, the proposed total quantity of allowances must be in line with a Member State's target within the framework of

the Kyoto Protocol. This meant that a Member State should make sure that the allocations that they grant their installations will allow it to meet its Kyoto target. [3]

The amounts of allocated allowances are seen in Table 1. In the phase I, the EU ETS received criticism because some countries gave their industries such generous emission caps that there was no need for them to reduce emissions.

	2005	2006	2007	2008	2009
EU-15	1650,25	1627,26	1631,47	1458,64	1463,75
EU-27			2153,12	1949,51	1959,41

Table 1 Allocated allowances, EU-15 and EU-27, unit Mt CO2-eq. [5]

2.2 Phase II description

In the 2008-2012 trading period, joined the Clean Development Mechanism and Joint Implementation to the EU ETS. In the year 2012 aviation industry will be part of the emission trading system as well.

2.2.1 Phase II allocation

Each Member State of the European Union had to prepare and publish a National Allocation Plan for the second trading period by 30 June 2006.
The Commission learned from the first trading period that the NAP process is very time consuming. Timely notification of NAPs to the Commission as well as timely final allocation decisions are therefore important for giving companies certainty well before a trading period starts. [3]

Another important lesson is that the NAPs for the first trading period were too complex and not enough transparent. Complexity made it hard for companies and other market actors to understand a NAP and thereby created uncertainty. There was also a lack of transparency, which made very difficult for stakeholders to understand and form a view on plans. [3]

To ensure greater transparency, the Commission has drawn up a number of standardized tables to summarize key information contained in NAPs. To move to simpler NAPs the Commission encouraged Member States to review critically the administrative rules created in the first NAP round. [3]

In the phase II the cap became tighter compared to the phase I. In the year 2008 allocated allowances dropped 11,6% from the year 2005 in EU-15 countries. Allocated allowances, are seen in Table 1.

2.2.2 CDM and JI

In the phase II, the EU laws allow operators to use CDM and JI credits up to a percentage determined in the National Allocation Plans. Unused entitlements are transferred to the next trading period (2013-2020). Between 2008 and 2020, the EU ETS legislation provides for use of credits up to 50% of the overall reductions below 2005 levels made under the EU ETS. The exact amount per operator is to be determined in line with methodology outlined in Directive 2OO9/29/EC - Article 11a(8) [3].
Until now, the CDM mechanism has issued some 450 million CERs (this include all Annex 1 countries), of which the major project types are industrial, mainly HFC-23 projects (219 million CERs issued) and N2O-adipic projects (97 million CERs issued), renewables projects (63 million CERs issued) and energy efficiency projects (28 million CERs issued). By the end of 2012, this will increase to 980 million CERs [9].

The Joint Implementation had submitted and published 236 project design documents (PDDs) on the UNFCCC website by the end of the October 2010. These would achieve emission reductions of approximately 370 million tonnes of carbon dioxide equivalent (t CO2 eq) and 35 million t CO2 eq during the first commitment period of the Kyoto Protocol. [10]

The amounts of surrendered CERs and ERUs in the EU-15 and in the EU-27 can be seen in Table 2.

EU-15		
CDM and JI	2008	2009
Surrendered CERs	69,43	56,35
Surrendered ERUs	0,05	1,68

EU-27		
CDM and JI	2008	2009
Surrendered CERs	82,27	77,61
Surrendered ERUs	0,05	3,01

Table 2 Surrendered CERs and ERUs in 2008-2009, EU-15 and EU-27, unit Mt CO2-eq. [5]

2.2.3 Aviation

Direct emissions from aviation account for about 3% of the EU's total greenhouse gas emissions. This number does not include indirect warming effects, such as those from NOx emissions, contrails and cirrus cloud effects. The overall impact is therefore higher. The Intergovernmental Panel on Climate Change (IPCC) has estimated that aviation's total impact is about 2 to 4 times higher than the effect of its past CO2 emissions alone. Also the EU's emissions from international aviation are increasing fast, by 87% since 1990. [3]

This is why European Commission wanted to bring aviation to the EU ETS. From the start of 2012, emissions from all domestic and international flights, from or to anywhere in the world, that arrive at or depart from an EU airport will be part of the EU Emissions Trading System.

The system works like in other industrial sectors. Airline operators will receive tradable allowances covering a certain level of CO2 emissions from their flights per year. After each year operators must surrender a number of allowances equal to their actual emissions in that year [3]. The inclusion of aviation is estimated to lead to an increase in demand of allowances about 10-12 million tonnes of CO2 per year in phase II [6].

2.3 Verified emissions in phase I and II

The annual EU-15 member states verified emissions were around 1650 Mt CO2-eq during 2005-2008. The world wide financial crisis started from the US in 2007. It expanded to the Europe and impacts of the economic recession can be seen in the amount of emissions in 2009. The verified emissions dropped to 1436,11 Mt CO2-eq. This is about 11,5% less than in the year 2008 and 13,8% less than in 2007.
The EU-27 verified emissions were above 2100 Mt CO2-eq in 2007 and 2008. In 2009 verified emissions dropped to 1853,08 Mt CO2-eq, which is 11,7% less than in 2008 and 14,4% less than in 2007. All the results of verified emissions by sectors are presented in Table 3.

EU-15					
Verified emissions by sectors, [Mt CO2-eq]	2005	2006	2007	2008	2009
1. Combustion installations	1147,73	1156,83	1164,55	1131,55	1031,95
2. Mineral oil refineries	141,40	140,23	140,66	139,00	132,23
3. Coke ovens	16,72	18,28	18,83	18,09	13,80
4. Metal ore roasting or sintering	7,43	7,71	8,11	7,69	5,57
5. Pig iron or steel	113,31	115,59	115,07	114,02	79,61
6. Cement clinker or lime	154,81	156,74	162,48	152,56	122,98
7. Glass including glass fibre	17,27	17,23	17,14	18,28	16,06
8. Ceramic products by firing	11,77	11,95	11,73	10,28	7,06
9. Pulp, paper and board	28,59	28,69	27,80	29,08	25,60
99. Other activity opted-in	0,14	0,12	0,13	1,40	1,26
Total	1639,17	1653,37	1666,49	1621,95	1436,11
Change from the year 2005	0	0,87 %	1,67 %	-1,05 %	-12,39 %

EU-27					
Verified emissions by sectors, [Mt CO2-eq]	(EU-25) 2005	(EU-25) 2006	2007	2008	2009
1. Combustion installations	1459,33	1470,67	1543,71	1496,41	1362,19
2. Mineral oil refineries	151,10	149,58	154,35	153,33	144,31
3. Coke ovens	19,19	21,30	22,08	20,99	15,76
4. Metal ore roasting or sintering	12,64	14,05	24,94	17,64	11,03
5. Pig iron or steel	129,29	132,90	132,24	133,28	95,42
6. Cement clinker or lime	177,54	182,08	201,04	189,03	150,11
7. Glass including glass fibre	20,11	20,03	21,35	22,70	19,36
8. Ceramic products by firing	14,73	14,88	14,85	13,36	8,99
9. Pulp, paper and board	29,91	30,00	29,40	31,18	27,51
99. Other activity opted-in	0,17	0,16	20,80	22,32	19,40
Total	2014,02	2035,65	2164,75	2100,24	1854,08
Change from the year 2005 (EU-25)	0,00	1,07 %	2,08 %	-0,80 %	-11,94 %

Table 3 Verified emissions by sectors in EU-15 and EU-27, unit Mt CO2-eq. [5]

2.4 Price

When the EU ETS started on January 2005, the price increased from around €7/ton of CO2 to above €30 in April 2006, before crashing to below €10 within 3 days. The price rose again and stabilized above €15 for about 4 months before decreasing to practically zero by mid 2007. The April price crash was actived by

the first round of emissions verification, which revealed that verified 2005 emissions were 94 Mt below the cap. The second round of emission verifications in May 2007 again found the market to be long, but this no longer had a significant impact since prices had decreased to a few cents. Emission verifications for 2007 occurred after the end of phase I. [11]

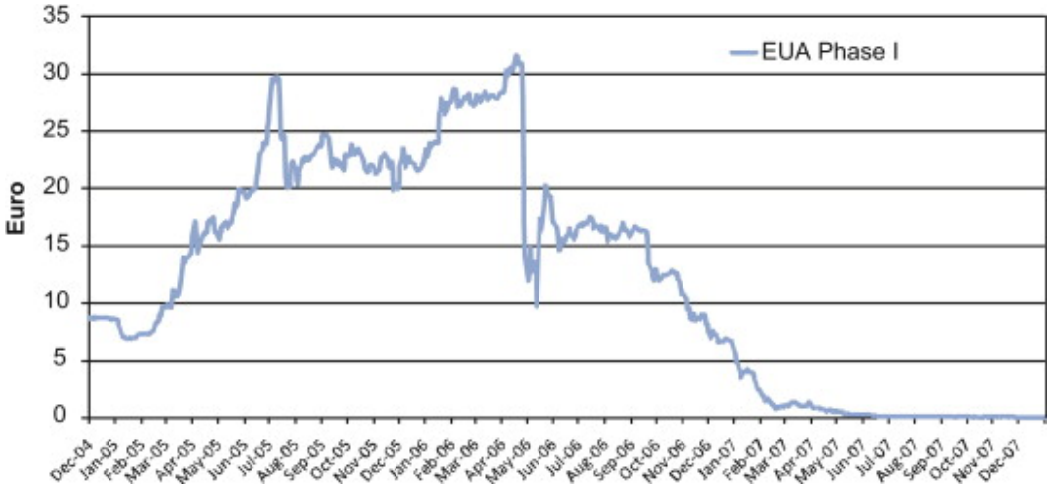

Figure 2 EUA price level, phase I, unit €/ton of CO2 [11]

In the phase II carbon prices have been a more stable and healthy price pattern comparing to the phase I. As shown in Figure 3, the price has been oscillating between €10 and €30/ton of CO2, depending on the levels of allowances demand due to industrial production, and the likely depressive impact of the economic recession crisis [12].

Figure 3 EUA and CER price level, phase II, unit €/ton of CO2 [26]

3. Phase III (2013-2020)

For Phase III (2013–2020), the Directive 2009/29/EC brings a number of notable changes for the emission trading system: the setting an overall EU cap, with allowances then allocated to EU members; tighter limits on the use of offsets; unlimited banking of allowances between Phases II and III; and a move from allowances to auctioning. [14]

As from 2013, the scope of the ETS will be extended to include other sectors and greenhouse gases: more CO2 emissions from installations producing bulk organic chemicals, hydrogen, ammonia and aluminium will be included, as will nitrous oxide (N2O) emissions from the production of nitric, adipic and glyocalic acid production and perfluorocarbons from the aluminium sector. Installations performing activities, which result in these emissions, will be included in the EU ETS as from 2013. [25]

The new changes mean that the EU ETS will deliver two-thirds of the EU's unilateral 20% emissions reduction target by 2020 on 1990 levels. This equates to 21% reduction by 2020 compared to the 2005 verified emissions baseline under the EU ETS. [25]

The cap will decrease each year by 1.74% of the average annual total quantity of allowances issued by the Member States in 2008-2012 [25]. In absolute terms this means the number of allowances will be reduced annually by 37,435,387. This annual reduction will continue beyond 2020 but may be subject to revision not later than 2025. [3] The cap for the year 2013 has been determined at 2,039,152,882 allowances, i.e. just under 2.04 billion allowances [3].

Some 3.6 billion certified emissions reductions (CERs) will be issued by the UN by 2020, eight times the amount of CERs currently available, and almost four times as many as will be available by the end of 2012, according to Point Carbon, and others. However, new EU rules on environmental integrity may exclude an estimated 530 million credits from use within the EU's emissions trading scheme, and may mean there is insufficient supply to fill the EU ETS' import limit. [9]

Like shown before, HFC-23 and N2O-acipic projects have been the most popular projects under the CDM mechanism (currently 219 million and 97 million CERs issued). This has attracted controversy of late due to claims that some developers are gaming the system by manufacturing and destroying the by-products solely to earn CERs. According to Arne Eik, Manager of CDM

analysis at Point Carbon Trading Analytics and Research: “The revision of methodologies for HFC-23 and N2O-adipic acid projects will lead to reduced volumes from these project types.” Point Carbon expects the Commission to exclude HFC-23 and N2O-adipic acid projects for reasons of environmental integrity, thereby removing some 530 Mt of CERs from being eligible for use by operators in phase 3 of the EU’s Emissions Trading Scheme [9].

About the EUA price in the phase III, Point Carbon predict that under the current EU policy, which calls for carbon emissions in 2020 that are 20% less than those of 1990, the price in 2016 should be €20-40. If the EU opts for a 30% cut the range would be €30-60. [13]

SocGen sees EU CO2 permits €22-60 a tonne in 2020. Prices in the scheme's third phase will depend on a global climate deal being signed which spurs the EU to move to a steeper 30 percent emissions reduction goal and limits on Kyoto offsets from 2013. [15]

4. Other areas

New emissions trading systems are developing or being proposed in several regions and countries around the world. While some have already defined rules, others have not yet finalized their detailed approach. Lessons are being learned from the early years of existing schemes, especially the EU ETS has been a pioneer for them.

The United States has not ratified the Kyoto Protocol. However, they are developing own mechanisms to reduce greenhouse gas emissions. The Regional Greenhouse Gas Initiative (RGGI), began on 1 January 2009, is the nation’s first mandatory, market-based program to reduce emissions of carbon dioxide. The ten states in the Northeastern United States region, participating in RGGI, have established a regional cap on CO2 emissions from the power sector and are requiring power plants to possess a tradable CO2 allowance for each ton of CO2 they emit. The RGGI program has created the infrastructure for a market-based approach to regulating CO2 emissions with strong market oversight. The RGGI covers fossil fuel-fired power plants 25 megawatts or greater in size (currently 209 facilities region-wide). The cap for years 2009-2014 is 188 million tons annually, 2015-2008 cap declines by 2,5 percent per year for total reduction of 10 percent. [22]

There are also other schemes in discussion, such as the Western States Climate Action Initiative (WCI) and the California Global Warming Solutions Act (AB-32).
On 26 June 2009, the House of Representatives passed an American Clean Energy and Security Act. If passed by the Senate, this would create a cap and trade program covering 85% of US greenhouse gas emissions, including; power, industry, transport, commercial and residential sectors. The targets are set against 2005 emission levels at a 3% reduction by 2012, 17% by 2020, 42% by 2030 and 83% by 2050 [19]. However, in July 2010 it was reported that the Senate would not consider climate change legislation before the end of the legislative term [23].

The government of Canada is committed to reduce total greenhouse gas emissions by 17% from 2006 levels by 2020 and by 60% to 70% by 2050. The creation of a carbon market is part of the government's commitment to reduce emissions. In June 2009, the Canadian government published new guidelines for Canada's Offset System for Greenhouse Gases [19].

The Offset System is designed to encourage cost-effective domestic greenhouse gas reductions or removals in activities or sectors that are not covered by the planned federal greenhouse gas emissions regulations. Opportunities for Offset Projects exist across the economy, and could include, for example, methane capture and destruction from landfill gas, reforestation and other forestry projects, and agricultural soil management. [20]

Each offset credit will represent one tonne of CO2-equivalent reduced or removed. Offset credits will be tradable and bankable. The planned federal greenhouse gas emissions regulations will set out the conditions under which regulated entities will be able to use offset credits for compliance. [20]
The Canadian government has indicated that it will continue to monitor United States developments to ensure harmonized rules and Canada will only adopt a cap-and-trade regime if the U.S. will do the same. [19]

The New Zealand emissions trading system (NZ ETS) covers emissions of the following six greenhouse gases: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF6). The NZ ETS will cover the following sectors of the economy: forestry, transport fuels, electricity production, industrial processes, synthetic gases, agriculture and waste. The NZ ETS started in January 1 2008, only by the forest sector. Other sectors take part on system by periodically and the system should cover all the sectors in the 2015. The emissions trading scheme has been designed to support efforts to reduce greenhouse gas emissions while maintaining economic productivity. It is internationally linked and reflects international climate change rules; uses self-assessment for monitoring, reporting and verifying emissions produced by participants. [16]

Since 2008 the Australian government has been working on plans to establish an emissions trading scheme (the Carbon Pollution Reduction Scheme [CPRS]) as a key mechanism to transition Australia to a low greenhouse gas emission future. The CPRS is a cap and trade emissions trading scheme and is designed

to cover around 80 per cent of Australia's carbon pollution, including carbon pollution from stationary energy (i.e. electricity generation and industrial fuel combustion, 52%), transport (14%), industrial processes (5%) and waste (2%), and fugitive emissions from coal mining, oil and gas extraction, and gas pipeline transport (7%). All six greenhouse gases included under the Kyoto Protocol were to be covered by the scheme. Reforestation activities would have been eligible to generate permits under the CPRS on a voluntary basis. [17]

However, legislation to implement the scheme from 2011 was rejected in the Australian Parliament twice, in August and December 2009. The legislation was reintroduced into Parliament with amendments on 2 February 2010. On 27 April 2010 the Government deferred Emissions Trading until post 2012, Prime Minister Kevin Rudd says he has been forced to put his emissions trading scheme on ice because of the Coalition's opposition and the slow pace of international climate change action. Mr. Rudd has confirmed the ETS has been shelved until at least 2013 so the Government can consider what the rest of the world will do beyond the expiration of the Kyoto protocol. [18]

Japan's target is to cut its greenhouse gas emissions by 25% from 1990 levels by 2020. In September 2008, Japan unveiled an outline of a greenhouse gas ETS, which was launched on a trial basis in October 2008. Initially, the system is voluntary and Japanese companies are allowed to set their own emissions reduction targets. In addition to allowance trading, companies will be able to use CDM credits, national offset credits and credits from Japan's voluntary emissions trading scheme. In September 2009, the Japanese Prime Minister committed to mobilize all available policy tools including a domestic emissions trading mechanism. [19]

However, Japan has postponed the creation of a greenhouse gas emission trading system by a year until after April 2014 in the face of strong opposition from the business lobby. The administration had planned to launch the cap and trade scheme in the fiscal year starting in April 2013. [21]

The government of South Korea aims to reduce greenhouse gas emissions by 30 percent from projected levels by 2020. South Korea is OECD's fastest-growing carbon polluter and its emissions have doubled from the 1990, now nearly 600 million tonnes of CO2 eq. On February 2011, the government of South Korea announced that it would start carbon emission trading from January 1 of 2015. The cap and trade scheme would cover about 60 percent of the nation's greenhouse gas emissions. [24]

5. Conclusion

The Kyoto Protocol sets binding targets for industrialized countries and European community for reducing greenhouse gas emissions and mechanisms to achieve these targets. The European Union uses all these three mechanism: emission trading system, clean development mechanism and joint implementation.

The EU ETS started on January 1, 2005. The phase I was introduced as a warm up period and it operated from 2005 to 2007 in order to put in place the policy infrastructure of permits trading.

In the second trading period 2008-2012, joined the Clean Development Mechanism and Joint Implementation to the EU ETS. In the year 2012 aviation industry will be part of the emission trading system as well. The system also got more transparency and simplicity to its structure for the phase II.

For the third trading period 2013–2020, the Directive 2009/29/EC brings a number of changes for the emission trading system: an overall EU cap, with allowances then allocated to EU members; tighter limits on the use of offsets; unlimited banking of allowances between phases II and III; and a move from allowances to auctioning. Also new sectors and greenhouse gases join to the emission trading system. Especially the allowing of banking is a necessary improvement because it makes carbon-markets more stable and predictable.

The EU ETS has showed to the world that workable and widely spread emission trading system is possible. It has run over six years and development occurs all the time. Mean while, it seems, that other countries and areas just watch, what the biggest polluters (China, the USA, India and Russia) do, and won't want to start their own emission trading systems before the big ones. For the global success of reduction of greenhouse gases, it is important that these biggest polluters commit to reduce their emissions and this way shows an example for others. The mechanisms for emission trading system already exist.

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